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FIFTEENTH ANNUAL SURVEY OF MOUNTAIN PINE BEETLE ACTIVITY ON THE COEUR D'ALENE NATIONAL FOREST 1943

SUBJECT—

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Curtailment of funds and reduction of personnel made it necessary to confine surveys to only those units where it was thought potentially serious infestations existed. Even on such areas the percent of survey coverage was of necessity quite low. For that reason the data may indicate the trend but be somewhat in error as to the actual infestation on each unit. The data as a whole, which may be considered as giving a reliable index of the status of the infestation, shows a general increase.

The units surveyed, area, and the data secured are given in Table 1, followed by a detailed discussion of conditions noted on each unit. J. C. Evenden and A. L. Gibson spent 17 days in obtaining the survey data for the 1943 season, given in this report.

Mountain Pine Beetle Infestation in Western White Pine
Coeur d'Alene National Forest
1943

Unit	Acreage	Infested trees per acre in 1943	1942	1941	1940	Infested trees on unit in 1943	1942	1941	1940	Percent of stand killed in 1943	1942	1941	1940
N.Yellow Dog	840	.04	.22	.06	.03	34	184	50	25	.1.	.8	.1	.1
Yellow Dog R.	2140	.83	.66	.62	.41	1780	1412	1326	837	1.9	1.4	1.9	.8
Yellow Dog Cr.	4120	.51	.11	.29	.19	2092	453	1195	783	.9	.2	.5	.3
Downey Creek	4160	1.06	.43	.52	.21	4429	1789	2163	873	1.8	.7	.9	.5
Sissons	4700	.62	.50	.51	.19	2928	2350	2397	893	2.0	1.6	1.6	.6
Hawksite	8780	.23	No data		.07	2010	No data		614	1.6	No data		.5
Cabin Creek	7000	.22	No data		.09	1568	No data		623	3.5	No data		.4
Totals	31740					14841 1/	6188 1/	7131	4648				

1/ Average increase on first five units from 1942 to 1943 -- 82 percent

North Yellow Dog Unit — Acreage 840

Attacked trees per acre	.041
Percent of stand killed	.13
Infested trees on unit	34

The presence of only one lightly attacked tree on 39.3 acres of strip is hardly understandable after the much heavier infestation of the previous year. There is a possibility that the late season delayed many of the attacks so that the data secured does not represent conditions.

Causes other than bark beetles are killing some trees on this unit.

Yellow Dog River Unit — Acreage 2140

Attacked trees per acre	.83
Percent of stand killed	1.9
Infested trees on unit	1780

An increase in infestation is indicated on this unit, the amount being about 25 percent. However, there seemed to be a decrease in the aggressiveness of the infestation as shown by the generally lighter attack per average infested tree.

Yellow Dog Creek Unit — Acreage 4120

Attacked trees per acre	.51
Percent of stand killed	.9
Infested trees on unit	2092

Lack of available time made it impossible to examine as much of this unit as was desirable. For that reason the data secured may not be representative. but is presented as the best estimate available. This estimate shows the number of attacked trees in 1943 to be nearly five times as many as in 1942.

At the time this unit was examined it was found that about 11 percent of the infestation was still in trees attacked in 1942. Sixteen percent of the infestation was in windfalls and 26 percent were green-sided or pitched-out attacks. Only 32 percent were heavily attacked trees.

Factors other than barkbeetles are causing considerable loss on this unit. Barkbeetle attack in such trees was chiefly light and obviously secondary.

Downey Creek Unit — Acreage 4160

Attacked trees per acre	1.06
Percent of stand killed	1.8
Infested trees on unit	4429

Comparison of the data for the two years, 1943 and 1942, shows that approximately 150 percent increase occurred in 1943. Also the brood seems potentially heavier in this drainage, about 42 percent of the trees being heavily attacked.

Infestation on the drier south-facing slopes is much heavier than on the slopes facing the north, judging by an analysis of one strip. The data from it is as follows:

Influence of Slope on Percent of Western White Pine Attacked by the Mountain Pine Beetle on the Downey Creek Unit, 1943

Slope	Number of Green trees	Attacked trees	Percent of trees attacked
South-facing	283	12	4.1
North-facing	576	10	1.7

From the preceding data it is seen that infestation is about 2 1/2 times as heavy on south as on north-facing slopes. The average for the unit is 1.8 percent of the stand attacked.

Sissons Unit — Acreage 4700

Attacks per acre	.62
Percent of stand attacked	2.0
Infested trees on unit	2928

An increase of about 25 percent, over the preceding years infestation, is estimated for this unit. Windfalls, from a heavy blowdown in the early part of 1942, have probably attracted the mountain pine beetle to the unit. Judging from the type of attacks, this infestation is decidedly aggressive and may be expected to increase. Windfalls may have absorbed much of the 1943 infestation but what the trend will be when that

material is exhausted is difficult to predict.

Hawksite Unit — Acreage 8780

Attacks per acre	.23
Percent of stand killed	1.6
Infested trees on unit	2010

The flat at the mouth of Bull and of Falls Creeks and a short distance south on the Big Creek Road has a concentration of infestation. On the logged-off flat, attacks are light on the widely-separated, exposure-weakened trees but along the main road the infestation is in healthy trees, heavily attacked and containing numerous brood. About 200 attacked trees are believed to be present on this 100 acre area.

In section 29, at the south end of the Hawksite Unit, a concentration of infestation was found on the west side of Big Creek. It is believed to be present in equal intensity in the portions of sections 20, 21, and 28 bordering Big Creek.

The estimated infestation on this unit is about a 225 percent increase over that present in 1940, when the preceding survey was made.

Cabin Creek Unit — Acreage 7000

Attacks per acre	.22
Percent of stand killed	3.5
Infested trees on unit	1568

The data for 1943 shows an estimated increase of 150 percent over the indicated infestation for the previous survey, made in 1940. A heavy blowdown, making available a large amount of favorable host material, is believed to be largely responsible for this increase. A concentration of it is present in the vicinity of the mouth of Clinton Creek where there

are about 400 windthrown western white pine over 8 inches in breast high diameter. Strip run in this area revealed 46 percent of the windfalls had been attacked by the mountain pine beetle prior to 1943, 31 percent contained that insect in 1943, and 23 percent were unattacked and still green. Already the insects are beginning to "boil over" into standing timber, as was noted about 70 chains up Clinton Creek from the Big Creek Road, where a group of 17 heavily attacked trees was found.

Present indications point to a decided increase in infestation in the standing timber in the vicinity of this blowdown, in 1944. Infestation in the higher parts of this unit is light.

Effect of Subnormal Temperatures on Development of the Mountain Pine Beetle

The season of 1943 was decidedly cooler than normal. As a result trees containing mature larvae in the fall of 1942 still harbored a few mature larvae, many pupae and new adults, and showed but little emergence up to late August and early September. Normally most of the brood would have emerged by that time, with the few still present limited chiefly to new adults. Trees attacked in late spring or early summer had only short egg galleries and brood limited to eggs and small larvae in early August instead of large larvae and some pupae, the normal development for that time of the year. Subnormal temperatures in May, June and July are believed to have caused this retarded development. Subnormal temperatures also prevailed during the month of August. Records of the temperatures during the spring and summer of 1943 at the nearest available stations are given in the following tabulation.

Temperature Records at Weather Bureau Stations Within or Near the Coeur d'Alene National Forest.

Deception Creek

Month	1943 Mean	1943 Departure (1)	1942 Mean	1942 Departure
April	40.5	-2.4	42.4	-0.5
May	45.5	-2.6	48.5	0.4
June	52.2	-2.3	53.6	-0.9
July	61.2	-1.9	62.8	-0.3
August	58.2	-2.0	61.4	1.2
Sept.	53.6	-0.3	54.2	0.3
Cumulative totals		-11.5		0.2

(1) Based on records for 3 years for April, May, June and July; on 4 years for August and September.

Wallace

April	46.9	1.2	48.8	3.1
May	47.9	-5.1	50.6	-2.4
June	53.7	-6.1	54.8	-5.0
July	63.9	-2.7	66.1	-0.5
August	61.3	-3.8	65.0	-0.1
Sept.	58.1	1.5	58.0	1.4
Cumulative totals		-15.0		-3.5

Kellogg

April	48.3	2.0	49.2	2.9
May	50.4	-3.2	52.2	-1.4
June	56.2	-4.3	57.8	-2.7
July	66.8	-0.5	69.4	2.1
August	63.4	-1.6	68.2	3.2
Sept.	60.3	3.3	60.0	3.0
Cumulative totals		-4.3		7.1

Roland

April	39.0	-0.5	43.6	4.1
May	43.7	-5.3	46.0	-3.0
June	50.1	-5.5	50.3	-5.3
July	61.1	-1.8	63.2	0.3
August	58.8	-2.7	62.5	1.0
Sept.	56.4	3.4	55.2	2.2
Cumulative totals		-12.4		-0.7

Average Monthly Departure for the Four Weather Stations.

April	0.1	2.4
May	-4.1	-1.6
June	-4.5	-3.5
July	-1.7	0.4
August	-2.5	1.3
Sept.	2.0	1.7
Cumulative Totals	-10.7	0.7
Average per month	-1.8	

Inspection of the data for the months of May to August of 1943 reveals a total deficiency in temperature at all stations, with the month of May about normal and September well above normal. The average deficiency for the six months, practically the entire developmental period of the mountain pine beetle, was 1.8 degrees below normal. It is this temperature deficiency which is believed to be responsible for the retarded development of the mountain pine beetle in 1943. Temperatures during the same period of 1942 averaged slightly above normal. The effect of the sub-normal temperatures during 1943 may be to defer many of the attacks of the mountain pine beetle that would normally occur in the late summer of 1943 to the spring of 1944.

Summary and Discussion.

Increases were noted in number of attacked trees on six and a decrease on the seventh of the units surveyed on the Coeur d'Alene National Forest during the 1943 season. Averaging the conditions for the seven units reveals an increase of 82 percent over the number of attacked trees present at the time of the preceding survey.

Except on the Sissons Unit, the greatest activity of the moun-

tain pine beetle, on the areas examined in 1943, is in the lower altitudinal limits. On the unit mentioned, extensive windfall has attracted the barkbeetles into the higher as well as the lower parts of the units. On the higher ridges of the various units, where considerable lodgepole pine is to found, mountain pine beetle activity is quite light.

South-facing slopes continue to show heavier losses from the mountain pine beetle than other exposures. Other agencies than barkbeetles are causing appreciable losses on these same slopes, with barkbeetle attacks frequently secondary to this other agency or agencies.

Subnormal temperatures are believed to be responsible for the retarded development of the mountain pine beetle observed in 1943.